

## APPENDIX OF PENDING CLAIMS

103. A method of treating allergy in humans comprising administering to a human at least one therapeutic composition in an amount sufficient to down regulate a protein allergen specific immune response in the human, wherein the therapeutic composition comprises at least one peptide having a defined sequence of amino acid residues, said peptide comprising at least one T cell epitope recognized by a T cell receptor specific for the protein allergen, said peptide being reproducible, being purified to at least about 90% purity and not being conjugated to any other molecule.

104. The method of claim 103, wherein the peptide comprises 50 amino acid residues or less.

105. A method of treating allergy in humans comprising administering to a human at least one therapeutic composition in an amount sufficient to down regulate a protein allergen specific immune response in the human, wherein the therapeutic composition comprises at least one peptide having a defined sequence of amino acid residues, said peptide comprising at least one T cell epitope recognized by a T cell receptor specific for the protein allergen and being present in a dosage range of about 20  $\mu$ g - 1.5 mg per kg body weight of peptide per dosage unit, said peptide being reproducible and not being conjugated to any other molecule.

106. The method of claim 104, wherein the peptide comprises 50 amino acid residues or less.

107. The method of claim 105, wherein the peptide has a mean T cell stimulation index of at least about 2.5 determined in an *in vitro* T cell proliferation assay with T cells obtained from a population of at least 30 humans sensitive to the protein allergen.

108. A method of treating allergy in humans comprising administering to a human at least one therapeutic composition in an amount sufficient to down regulate a protein allergen specific immune response in the human, wherein the therapeutic composition comprises at least one peptide having a defined sequence of amino acid residues, said peptide comprising at least about 20% of the T cell epitopes recognized by

T cell receptors specific for the protein allergen, said peptide being reproducible and not being conjugated to any other molecule.

109. The method of claim 108, wherein the peptide comprises 50 amino acid residues or less.

110. A method of treating allergy in humans comprising administering to a human at least one therapeutic composition in an amount sufficient to down regulate a protein allergen specific immune response in the human, wherein the therapeutic composition comprises at least one peptide having a defined sequence of amino acid residues, said peptide being reproducible, being purified to at least about 90% purity and not being conjugated to any other molecule, said peptide being capable of mimicking a T cell epitope recognized by a T cell receptor specific for the protein allergen.

111. The method of claim 110, wherein the peptide comprises 50 amino acid residues or less.

112. A method of treating allergy in humans comprising administering to a human at least one therapeutic composition in an amount sufficient to down regulate a protein allergen specific immune response in the human, wherein the therapeutic composition comprises at least one peptide having a defined sequence of amino acid residues, said peptide being reproducible and purified to at least about 90% purity, said peptide being derived from an antigen which is a bystander antigen to the protein allergen to which a human is sensitive.

113. The method of claim 112, wherein the peptide comprises 50 amino acid residues or less.

114. The method as in any one of claims 103-113 wherein the peptide is modified by at least one amino acid substitution, addition or deletion, said peptide comprising a T cell epitope recognized by a T cell receptor specific for the protein allergen.

115. The method as in any one of claims 105-109, wherein the peptide is purified to at least about 90% purity.

116. The method of claim 115, wherein the peptide is purified to at least about 95% purity.

117. The method of claim 116, wherein the peptide is purified to at least about 97% purity.

118. The method as in any one of claims 103-104 and 110-113 wherein the peptide is purified to at least about 95% purity.

119. The method of claim 118, wherein the peptide is purified to at least about 97% purity.

120. The method as in any one of claims 103-113, wherein the peptide is at least about 12 amino acid residues in length.

121. The method as in any one of claims 103-113, wherein the at least one peptide comprises at least two peptides.

122. The method as any one of claims 103-113, wherein the protein allergen is selected from the group consisting of: a protein allergen of the genus *Dermatophagoides*; a protein allergen of the genus *Felis*; a protein allergen of the genus *Ambrosia*; a protein allergen of the genus *Lolium*; a protein allergen of the genus *Cryptomeria*; a protein allergen of the genus *Alternaria*; a protein allergen of the genus *Alder*; a protein allergen of the genus *Betula*; a protein allergen of the genus *Quercus*; a protein allergen of the genus *Olea*; a protein allergen of the genus *Artemisia*; a protein allergen of the genus *Plantago*; a protein allergen of the genus *Parietaria*; a protein allergen of the genus *Canine*; a protein allergen of the genus *Blattella*; a protein allergen of the genus *Apis*; a protein allergen of the genus *Cupressus*; a protein allergen of the genus *Juniperus*; a protein allergen of the genus *Thuya*; a protein allergen of the genus *Chamaecyparis*; a protein allergen of the genus *Periplaneta*; a protein allergen of the genus *Agropyron*; a protein allergen of the genus *Secale*; a protein allergen of the genus *Triticum*; a protein allergen of the genus *Dactylis*; a protein allergen of the genus *Festuca*; a protein allergen of the genus *Poa*; a protein allergen of the genus *Avena*; a protein allergen of the genus *Holcus*; a protein allergen of the genus *Anthoxanthum*; a protein allergen of the genus *Arrhenatherum*; a protein allergen of the genus *Agrostis*; a

protein allergen of the genus *Phleum*; a protein allergen of the genus *Phalaris*; a protein allergen of the genus *Paspalum*; and a protein allergen of the genus *Sorghum*.

123. The method of claim 122, wherein the protein allergen is selected from the group consisting of: *Der p* I; *Der p* II; *Der p* III; *Der p* VII; *Der f* I; *Der f* II; *Der f* III; *Der f* VII; *Fel d* I; *Amb a* I.1; *Amb a* I.2; *Amb a* I.3; *Amb a* I.4; *Amb a* II; *Lol p* I; *Lol p* II; *Lol p* III; *Lol p* IV; *Lol p* IX (*Lol p* V or *Lol p* Ib); *Cry j* I; *Cry j* II; *Can f* I; *Can f* II; *Jun s* I; *Jun v* I; *Dac g* I; *Poa p* I; *Phl p* I; and *Sor h* I.

124. The method of claim 107, wherein the peptide has a mean T cell stimulation index of at least about 3.0.

125. The method of claim 124, wherein the peptide has a mean T cell stimulation index of at least about 4.0.

126. The method of claim 107, wherein the peptide has a positivity index of at least 150.

127. The method of claim 105, wherein the peptide is present in a dosage range of about 50 µg - 750 µg per kg body weight of peptide per dosage unit.

128. The method as in any one of claims 103-113, wherein the composition further comprises a pharmaceutically acceptable carrier.

129. The method of claim 128, wherein the pharmaceutically acceptable carrier comprises at least one excipient selected from the group consisting of sterile water, sodium phosphate, mannitol, sorbitol, sodium chloride, and any combination thereof.

130. The method as in any one of claims 103-113, wherein the composition is soluble in an aqueous solution at a physiologically acceptable pH.

131. The method as in any one of claims 103-113, wherein said administering comprises a route of administration selected from the group consisting of oral, intravenous, sublingual, transdermal, inhalation, subcutaneous and rectal.

132. The method of claim 131, wherein said administering comprises subcutaneous administration of said composition.

133. The method as in any one of claims 103-113, wherein said composition is administered in non-immunogenic form.

134. The method as in any one of claims 103-113 comprising administering an initial treatment of three to six dosages of said composition over a period of no more than 6 weeks.

135. The method of claim 134 further comprising administering an additional administration of said composition at intervals of between about three months and one year after said initial treatment.

136. The method as in any one of claims 103-113, wherein said initial treatment comprises increasing the dosage with each subsequent additional dosage of said composition.

137. The method as in any one of claims 103-113, wherein said initial treatment comprises decreasing the dosage with each subsequent additional dosage of said composition.

138. The method as in any one of claims 103-113, wherein treatment results in a statistically significant improvement in symptoms caused by the human's immune response to the protein allergen.

139. The method of claim 128, wherein treatment results in at least about 17.5% improvement, as compared to placebo, in symptoms caused by the human's immune response to the protein allergen.

140. The method of claim 128, wherein treatment results in at least about 9% improvement, as compared to placebo, in nasal symptoms caused by the human's immune response to the protein allergen.

141. The method of claim 128, wherein treatment results in at least about 17.5% improvement, as compared to placebo, in lung symptoms caused by the human's immune response to the protein allergen.

142. The method of claim 139, wherein the treatment results in at least about 23% improvement.

143. The method of claim 139, wherein the treatment results in at least about 31% improvement.

144. The method of claim 139, wherein the treatment results in at least about 28.5 % improvement.